

Remarks

Claims 1-30 are pending in the instant application. No claims has been amended or canceled. No new matter has been added. The Applicants expressly reserve the right to further prosecute the same or similar claims in subsequent patent applications claiming the benefit of priority to the instant application. 35 USC § 120.

Rejections Under 35 USC § 103(a)

Various sets of claims stand rejected under 35 USC § 103(a), based on the Examiner's contentions that they are made obvious by various patents or publications or combinations thereof. To better organize the Applicants' traverses of the Examiner's rejections under 35 USC § 103(a), they are set forth below in paragraphs numbered corresponding to the numbering scheme used in the Office Action.

4. Claims 1-4, 8, 9, 12-14, 17-19, 22 and 26 were rejected under 35 USC § 103(a) as unpatentable based on Kahne (US 5,635,612) in view of Coassin (US 5,405,585). The Applicants respectfully disagree.

The Examiner contends that the claimed apparatus is unpatentable based on Kahne in view of Coassin. Applicants remind the Examiner that a *prima facie* case of obviousness requires that one of ordinary skill in the art must have had a reasonable expectation of success at the time of making the invention based on the combined references. *MPEP 2143.02*; *In re Rinehart*, 531 F.2d 1048 (CCPA 1976). The Applicants respectfully contend that one of ordinary skill in the art would not have had a reasonable expectation of success in developing the claimed automated solid-phase saccharide-synthesis apparatus based on the combination of Kahne and Coassin.

Whereas an automated means for synthesizing oligonucleotides was known, an automated means for synthesizing oligosaccharides was for a long time considered unattainable by those of ordinary skill in the art due to the complex nature of saccharide chemistry. See Sears, P.; Wong, C.-H. *Science* **2001**, *291*, 2344-2350. First, monosaccharides have up to four sites by which the chain may be extended. Second, α or β linkages can be formed at each anomeric center. Thus, saccharide chemistry requires

multiple protection and deprotection steps. *See id.* Coassin discloses the automation of peptide synthesis, but does not enable automated oligosaccharide synthesis. The enabled scope of Coassin's automated apparatus does not teach all of the limitations of claim 1. The Applicants remind the Examiner that in the case cited in the Office Action, *In re Veneer*, the CCPA held only that automation is obvious when it *broadly* provides an automatic or mechanical means to replace a mechanical activity. 262 F.2d 91 (CCPA 1958). Therefore, the Applicants contend that one of ordinary skill in the art would not have had a reasonable expectation of success in a program aimed at developing the claimed apparatus for automated saccharide synthesis based on the combination of Kahne and Coassin.

The Applicants respectfully remind the Examiner that claims 2-4, 8, 9, 12-14, 17-19, 22 and 26 are dependent on claim 1, which the Applicants respectfully contend is patentable over Kahne in view of Coassin. *MPEP* 2143.03 states that "if an independent claim is nonobvious under 35 USC § 103, then any claim depending therefrom is nonobvious." *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Accordingly, the Applicants respectfully request the withdrawal of the rejection of claims 1-4, 8, 9, 12-14, 17-19, 22 and 26 under 35 USC § 103(a).

5. Claims 5-7 stand rejected under 35 USC § 103(a) based on the Examiner's contention that they are obvious based on Kahne in view of Coassin, and further in view of Lapluye et al. (US 5,466,608). The Applicants respectfully contend that the limited teachings of Lapluye do not overcome the shortcomings of the combination of Kahne and Coassin with respect to the required reasonable expectation of success for rejected claim 1. Further, the Applicants respectfully remind the Examiner that claims 5-7 are dependent on claim 1, which the Applicants contend is not obvious as stated above. *MPEP* 2143.03 states that "if an independent claim is nonobvious under 35 USC § 103, then any claim depending therefrom is nonobvious." *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Accordingly, the Applicants respectfully request the withdrawal of the rejection of claims 5-7 under 35 USC § 103(a).

6. Claims 10, 11, 20, 21 and 27-30 were rejected under 35 USC §103(a) based on the Examiner's contention that they are unpatentable based on Kahne in view of Coassin as applied to claim 1, and further in view of Andrade et al. *Organic Letters* **1999, 1**, 1811. The Applicants respectfully disagree.

The Applicants contend that Kahne and Coassin in view of Andrade et al. does not form the basis of a proper 35 USC § 103(a) rejection of claims 10, 11, 20, 21 and 27-30. Andrade et al. is not available as prior art under 35 USC §103(a) because the article does not qualify as prior art under any section of 35 USC § 102. The Applicants remind the Examiner that the present application was filed on August 17, 2001; and claims priority to U.S. Provisional Application 60/254,233, filed on December 8, 2000 and U.S. Provisional Application 60/226,169, filed on August 18, 2000. The *Organic Letters* article by Andrade et al. was published on the Internet on October 28, 1999. Therefore, the Andrade et al. article is not prior art under 35 USC § 102(b) because it was not published more than 1 year prior to the earliest effective filing date (August 18, 2000) of the instant application.

The Applicants further contend that the article presented in *Organic Letters* **1999, 1**, 1811 does not qualify as prior art under 35 USC § 103(a) because it describes the Applicants' work. See *MPEP* 715.01(c) and 2141.01. The Applicants assert that the subject matter described in the *Organic Letters* article was invented by Peter H. Seeberger and Obadiah J. Plante, the co-inventors of the instant application. Co-authors Rodrigo B. Andrade and Luis G. Melean on the article presented in the *Organic Letters* article merely carried out assignments and worked under the supervision and direction of Peter H. Seeberger. Accordingly, pursuant to 37 CFR 1.132, the Applicants submitted declarations executed by Peter H. Seeberger and Obadiah J. Plante as evidence that the *Organic Letters* article describes the Applicants' work; i.e., that neither Andrade nor Melean is an inventor of anything disclosed in the publication. The Examiner acknowledged receipt of the declarations in the instant Office Action. The Applicants

respectfully remind the Examiner that “an affidavit or declaration by Applicant alone indicating that the Applicant is the sole inventor and that the others [listed as co-authors on the publication] were merely working under his or her direction is sufficient to remove the publication as a reference.” *In re Katz*, 687 F.2d 450 (CCPA 1982); *MPEP* 715.01(c).

Accordingly, the Applicants respectfully request the withdrawal of the rejection of claims 10, 11, 20, 21 and 27-30 under 35 USC § 103(a).

7. Claims 1, 2, 10, 12-20 and 22-25 stand rejected under 35 USC §103(a) based on the Examiner’s contention that they are unpatentable based on Toth et al. (WO 98/08799) in view of Coassin (US 5,405,585). The Applicants respectfully disagree.

The statement in Toth et al. that “[t]he person skilled in the art will be aware of suitable further reagents” does not form the basis of a proper 35 USC § 103(a) rejection because such a general statement does not satisfy the written description and enablement requirements. 35 USC § 112¶1. Moreover, as discussed in detail above, the Applicants respectfully contend that the teachings of Coassin do not provide a reasonable expectation of success with respect to developing an apparatus for the automated synthesis of oligosaccharides.

Further, the Applicants respectfully remind the Examiner that claims 2, 10, 12-20 and 22-25 are dependent on claim 1, which the Applicants contend is patentable over Toth in view of Coassin. *MPEP* 2143.03 states that “if an independent claim is nonobvious under 35 USC § 103, then any claim depending therefrom is nonobvious.” *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Accordingly, the Applicants respectfully request the withdrawal of the rejection of claims 1, 2, 10, 12-20 and 22-25 under 35 USC § 103(a).

8. Claims 11, 21, 29 and 30 were rejected under 35 USC §103(a) as being unpatentable over Toth et al. in view of Coassin, as applied to claims 1 and 2, and further in view of Andrade et al. The Applicants respectfully disagree.

The Applicants contend that Toth et al. and Coassin in view of Andrade et al. does not form the basis of a proper 35 USC § 103(a) rejection of claims 11, 21, 29 and 30. Andrade et al. is not available as prior art under 35 USC §103(a) because the article does not qualify as prior art under any section of 35 USC § 102. The Applicants remind the Examiner that the present application was filed on August 17, 2001; and claims priority to U.S. Provisional Application 60/254,233, filed on December 8, 2000 and U.S. Provisional Application 60/226,169, filed on August 18, 2000. The *Organic Letters* article by Andrade et al. was published on the Internet on October 28, 1999. Therefore, the Andrade et al. article is not prior art under 35 USC § 102(b) because it was not published more than 1 year prior to the earliest effective filing date (August 18, 2000) of the instant application.

The Applicants further contend that the article presented in *Organic Letters* 1999, 1, 1811 does not qualify as prior art under 35 USC § 103(a) because it describes the Applicants' work. See *MPEP* 715.01(c) and 2141.01. The Applicants assert that the subject matter described in the *Organic Letters* article was invented by Peter H. Seeberger and Obadiah J. Plante, the co-inventors of the instant application. Co-authors Rodrigo B. Andrade and Luis G. Melean on the article presented in the *Organic Letters* article merely carried out assignments and worked under the supervision and direction of Peter H. Seeberger. Accordingly, pursuant to 37 CFR 1.132, the Applicants submitted declarations executed by Peter H. Seeberger and Obadiah J. Plante as evidence that the *Organic Letters* article describes the Applicants' work; i.e., that neither Andrade nor Melean is an inventor of anything disclosed in the publication. The Examiner acknowledged receipt of the declarations in the Office Action. The Applicants respectfully remind the Examiner that "an affidavit or declaration by Applicant alone indicating that the Applicant is the sole inventor and that the others [listed as co-authors on the publication] were merely working under his or her direction is sufficient to remove the publication as a reference." *In re Katz*, 687 F.2d 450 (CCPA 1982); *MPEP* 715.01(c).

Accordingly, the Applicants respectfully request the withdrawal of the rejection of claims 11, 21, 29 and 30 under 35 USC § 103(a).


Fees

The Applicants believe they have provided for the required fees in connection with the filing of this paper. Nevertheless, the Director is hereby authorized to charge any additional required fee to our Deposit Account, 06-1448.

Conclusion

In view of the above remarks, it is believed that the pending claims are in condition for allowance. Therefore, the Applicants respectfully request reconsideration and withdrawal of the pending rejections. If a telephone conversation with Applicants' Attorney would expedite prosecution of the above-identified application, the Examiner is urged to contact the undersigned.

Respectfully submitted,
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